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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/878,824	06/11/2001	Fengmin Gong	30540/206333	3189

7590 04/20/2005  
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EXAMINER

PARTHASARATHY, PRAMILA

ART UNIT PAPER NUMBER

2136

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/878,824

Applicant(s)

GONG ET AL.

Examiner

Pramila Parthasarathy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01/21/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***DETAILED ACTION***

***Response to Amendment***

1. This is in response to request for reconsideration filed on January 21, 2005. Original application contained Claims 1 – 45. Remarks filed on January 21, 2005 have been entered and made of record. Therefore, pending Claims 1 – 45 are presented for further consideration and examination.

***Response to Arguments***

2. Applicant's arguments with respect to Claims 1 – 45 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1- 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cunningham et al. (U.S. Patent number 6,219,786, hereafter "Cunningham") in view of Reshef et al. (U.S. Patent Number 6,321,337).

4. Regarding Claim 1, Cunningham discloses and  
a proxy server for receiving network service requests from a client and forwarding said requests pursuant to a tolerance protocol to a protected server, and responding to a client (Cunningham Column 5 line 39 – Column 6 line 20);

an acceptance monitor for receiving from the protected server one or more responses to the client request and applying one or more acceptance tests thereto (Cunningham Column 6 lines 1 – 25).

Cunningham discloses a third access (ballot) monitor for receiving the results from the acceptance monitors and validates the proxy server (firewall) along with acceptance monitors. Cunningham does not explicitly disclose that the third access monitor receiving from the acceptance monitor the results of the applied acceptance tests and determining a preferred response to the client request. However, Reshef discloses a security gateway (proxy) positioning between external environment and a trusted server that controls access through acceptance rules wherein the security gateway receives from the access monitor the results of the applied acceptance tests and determines a preferred response to the client request (Reshef Column 12 lines 19 – 54).

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5. Motivation to combine the invention of Reshef with Cunningham comes from the need for providing a valid response by collecting responses from a variety of acceptance monitors and analyzing the response, Cunningham provide a discussion on the need for multiple acceptance rules but silent on ballot monitor, see Cunningham Column 6 lines 33 – 48. It would be obvious to one of ordinary skill in the art to combine Reshef with Cunningham because a consolidated response is needed for the results provided by the acceptance monitors of Cunningham and because Reshef provides some details of how a valid response is determined with access-rules, access lists and other relevant information.

6. Regarding Claim 2, Cunningham discloses and describes  
a proxy server for receiving network service requests from a client and forwarding said requests pursuant to a tolerance protocol to a protected server, and responding to a client (Cunningham Column 5 line 39 – Column 6 line 20);

an acceptance monitor for receiving from the protected server one or more responses to the client request and applying one or more acceptance tests thereto (Cunningham Column 6 lines 1 – 25);

an intrusion sensor responsive to anomalies in operation of the network for detecting threats to the network (Cunningham Column 6 lines 21 – 56 and Column 8 lines 10 – 48); and

an adaptive reconfigurer for altering the tolerance protocol and reconfiguring a network forwarding scheme among the proxy server, acceptance monitor and ballot

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monitor in response to a predetermined condition (Column 6 lines 1 – 48 and Column 8 lines 26 – 53).

Cunningham discloses a third access (ballot) monitor for receiving the results from the acceptance monitors and validates the proxy server (firewall) along with acceptance monitors. Cunningham does not explicitly disclose that the third access monitor receiving from the acceptance monitor the results of the applied acceptance tests and determining a preferred response to the client request. However, Reshef discloses a security gateway (proxy) positioning between external environment and a trusted server that controls access through acceptance rules wherein the security gateway receives from the access monitor the results of the applied acceptance tests and determines a preferred response to the client request (Reshef Column 12 lines 19 – 54).

7. Motivation to combine the invention of Reshef with Cunningham comes from the need for providing a valid response by collecting responses from a variety of acceptance monitors and analyzing the response, Cunningham provide a discussion on the need for multiple acceptance rules but silent on ballot monitor, see Cunningham Column 6 lines 33 – 48. It would be obvious to one of ordinary skill in the art to combine Reshef with Cunningham because a consolidated response is needed for the results provided by the acceptance monitors of Cunningham and because Reshef provides some details of how a valid response is determined with access-rules, access lists and other relevant information.

8. Regarding Claim 18, Cunningham discloses and describes  
receiving a network service request and forwarding the request pursuant to a  
tolerance protocol (Cunningham Column 7 lines 1 – 14);  
generating a response to the service request and forwarding the response  
(Cunningham Column 7 lines 1 – 14);  
applying one or more acceptance tests to the response and forwarding the test  
results (Cunningham Column 7 line 56 – Column 8 line 9);  
Cunningham discloses a third access (ballot) monitor for receiving the results  
from the acceptance monitors and validates the proxy server (firewall) along with  
acceptance monitors. Cunningham does not explicitly disclose polling the test results  
to determine a preferred response based upon the poll. However, Reshef discloses a  
security gateway (proxy) positioning between external environment and a trusted server  
that controls access through acceptance rules wherein the security gateway receives  
from the access monitor the results of the applied acceptance tests and forwards a  
preferred response to the client request (Reshef Column 12 lines 19 – 54).
9. Motivation to combine the invention of Reshef with Cunningham comes from the  
need for providing a valid response by collecting responses from a variety of  
acceptance monitors and analyzing the response, Cunningham provide a discussion on  
the need for multiple acceptance rules but silent on ballot monitor, see Cunningham  
Column 6 lines 33 – 48. It would be obvious to one of ordinary skill in the art to combine  
Reshef with Cunningham because a consolidated response is needed for the results

provided by the acceptance monitors of Cunningham and because Reshef provides some details of how a valid response is determined with access-rules, access lists and other relevant information.

10. Regarding Claim 19, Cunningham discloses and describes
- receiving a network service request and forwarding the request pursuant to a tolerance protocol (Cunningham Column 7 lines 1 – 14);
  - generating a response to the service request and forwarding the response (Cunningham Column 7 lines 1 – 55);
  - applying one or more acceptance tests to the response and forwarding the test results;
  - detecting any anomalies in operation of the network (Cunningham Column 8 lines 34 – 53); and
  - revising the tolerance protocol and a network forwarding scheme in response to an anomaly in operation of the network (Cunningham Column 8 line 54 – Column 9 line 13).

Cunningham discloses a third access (polling) monitor for receiving the results from the acceptance monitors and validates the proxy server (firewall) along with acceptance monitors. Cunningham does not explicitly disclose that the third access monitor receiving from the acceptance monitor the results of the applied acceptance tests and determining a preferred response to the client request. However, Reshef discloses a security gateway (proxy) positioning between external environment and a



trusted server that controls access through acceptance rules wherein the security gateway receives from the access monitor the results of the applied acceptance tests and determines a preferred response to the client request (Reshef Column 12 lines 19 – 54).

11. Motivation to combine the invention of Reshef with Cunningham comes from the need for providing a valid response by collecting responses from a variety of acceptance monitors and analyzing the response, Cunningham provide a discussion on the need for multiple acceptance rules but silent on ballot monitor, see Cunningham Column 6 lines 33 – 48. It would be obvious to one of ordinary skill in the art to combine Reshef with Cunningham because a consolidated response is needed for the results provided by the acceptance monitors of Cunningham and because Reshef provides some details of how a valid response is determined with access-rules, access lists and other relevant information.

12. Claim 3 is rejected as applied above in rejecting claim 1. Furthermore, Cunningham and Reshef disclose and describe wherein said proxy server further forwards said requests to an acceptance monitor and a ballot monitor (Cunningham Column 7 lines 1 – 14 and Reshef Column 12 lines 19 – 54) .

13. Claim 4 is rejected as applied above in rejecting claim 1. Furthermore, Cunningham and Reshef disclose and describe wherein said proxy server comprises

multiple independent proxy servers (Cunningham Column 6 lines 1 – 32; Column 8 lines 26 – 53 and Reshef Column 7 lines 10 – 28).

**14.** Claim 5 is rejected as applied above in rejecting claim 1. Furthermore, Cunningham discloses and describes, wherein said acceptance monitor comprises multiple independent acceptance monitors (Cunningham Column 6 lines 1 – 32 and Column 8 lines 26 – 53).

**15.** Claim 6 is rejected as applied above in rejecting claim 1. Furthermore, Cunningham and Reshef disclose and describe, wherein said ballot monitor comprises multiple independent ballot monitors (Reshef Column 7 lines 10 – 28).

**16.** Claim 9 is rejected as applied above in rejecting claim 1. Furthermore, Cunningham and Reshef discloses and describes, wherein said proxy server forwards said requests to a protective server, the acceptance monitor and the ballot monitor (Cunningham Column 6 lines 1 – 32; Column 8 lines 26 – 53 and Reshef Column 7 lines 10 – 28).

**17.** Claim 10 is rejected as applied above in rejecting claim 1. Furthermore, Cunningham discloses and describes, wherein said acceptance monitor applies one or more acceptance tests taken from the group of satisfaction of requirements test,

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accounting test, reasonableness test or computer run time test (Cunningham Column 8 26 – Column 9 line 18).

**18.** Claim 11 is rejected as applied above in rejecting claim 1. Furthermore, Reshef discloses and describes, wherein said ballot monitor determines a preferred response using a process taken from the group of: simple majority voting, Byzantine agreement process, or adjudication process (Reshef Column 7 lines 10 – 28).

**19.** Claims 12 and 21 are rejected as applied above in rejecting claims 1 and 18. Furthermore, Cunningham discloses and describes wherein said proxy server forwards said requests to multiple independent protected servers (Cunningham Column 5 lines – 51; and Column 10 lines 21 – 51).

**20.** Claim 7 is rejected as applied above in rejecting claim 2. Furthermore, Cunningham discloses and describes wherein said intrusion sensor comprises a multiplicity of sensors monitoring predetermined operations of the network (Cunningham Column 6 lines 1 – 32; Column 8 lines 26 – 53).

**21.** Claim 8 is rejected as applied above in rejecting claim 2. Furthermore, Cunningham and Reshef discloses and describes, wherein said adaptive reconfigurer reconfigures the network forwarding scheme to establish parallel forwarding among the

protected server, acceptance monitor, and ballot monitor (Cunningham Column 6 lines 1 – 32; Column 8 lines 26 – 53 and Reshef Column 7 lines 10 – 28).

**22.** Claim 15 is rejected as applied above in rejecting claim 2. Furthermore, Cunningham and Reshef discloses and describes, wherein at least one of said proxy server, acceptance monitor, ballot monitor, intrusion sensor and adaptive reconfigurer comprise a separate and independent processor (Cunningham Column 6 lines 1 – 32; Column 8 lines 26 – 53 and Reshef Column 7 lines 10 – 28 and Column 8 lines 15 – 45).

**23.** Claim 16 is rejected as applied above in rejecting claim 2. Furthermore, Cunningham and Reshef discloses and describes, wherein two or more of said proxy server, acceptance monitor, ballot monitor, intrusion sensor and adaptive reconfigurer operate on a single processor (Cunningham Column 6 lines 1 – 32; Column 8 lines 26 – 53 and Reshef Column 7 lines 10 – 28 and Column 8 lines 15 – 45).

**24.** Claim 17 is rejected as applied above in rejecting claim 2. Furthermore, Cunningham and Reshef disclose and describe, wherein the adaptive reconfigurer reconfigures the network forwarding scheme to establish multiple independent network forwarding paths (Cunningham Column 6 lines 1 – 32; Column 8 lines 26 – 53 and Reshef Column 7 lines 10 – 28 and Column 8 lines 15 – 45).

- 25.** Claim 20 is rejected as applied above in rejecting claim 18. Furthermore, Cunningham discloses and describes, wherein the step of receiving a network service request further comprises receiving a network service request at a proxy server (Cunningham Column 7 lines 1 – 14).
- 26.** Claim 22 is rejected as applied above in rejecting claim 18. Furthermore, Cunningham discloses and describes wherein the step of receiving a network service request further comprises forwarding the request to multiple protected servers (Column 5 lines 8 – 51 and Column 10 lines 21 – 52).
- 27.** Claim 23 is rejected as applied above in rejecting claim 18. Furthermore, Cunningham discloses and describes wherein the step of receiving a network service request further comprises forwarding the request on multiple independent paths (Column 6 lines 1 – 32 and Column 8 line 26 – Column 9 line 48).
- 28.** Claim 24 is rejected as applied above in rejecting claim 18. Furthermore, Cunningham discloses and describes wherein the step of generating a response comprises generating a response at a protected server (Column 6 lines 1 – 32).
- 29.** Claim 25 is rejected as applied above in rejecting claim 18. Furthermore, Cunningham discloses and describes wherein the step of generating a response and

forwarding the response comprises forwarding a response to an acceptance monitor (Column 6 lines 1- 32; Column 7 lines 15 – 25 and Column 8 lines 26 – 53).

**30.** Claim 26 is rejected as applied above in rejecting claim 18. Furthermore, Cunningham discloses and describes wherein the step of generating a response and forwarding a response comprises forwarding the response to multiple acceptance monitors (Column 6 lines 1 – 32 and Column 8 lines 26 – 53).

**31.** Claims 27 and 32 are rejected as applied above in rejecting claim 18. Furthermore, Cunningham discloses and describes the step of generating a response and forwarding a response comprises forwarding the response on multiple independent paths (Column 6 lines 1 – 32 and Column 8 line 26 – Column 9 line 48).

**32.** Claim 28 is rejected as applied above in rejecting claim 18. Furthermore, Cunningham discloses and describes the step of applying one or more acceptance tests comprise applying one or more acceptance tests at an acceptance monitor (Column 8 line 26 – Column 9 line 18).

**33.** Claim 29 is rejected as applied above in rejecting claim 18. Furthermore, Cunningham discloses and describes wherein the step of applying one or more acceptance tests comprise applying independent acceptance tests to each response (Column 8 line 26 – Column 9 line 18).

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**34.** Claim 30 is rejected as applied above in rejecting claim 18. Furthermore, Cunningham discloses and describes wherein the step of applying one or more acceptance tests and forwarding the test results comprises forwarding the test results to a ballot monitor (Column 6 lines 1 – 32; Column 8 lines 26 – 53 and Reshef Column 7 lines 10 – 28).

**35.** Claim 31 is rejected as applied above in rejecting claim 18. Furthermore, Cunningham discloses and describes wherein the step of applying one or more acceptance tests and forwarding the test results comprises forwarding the tests results to multiple ballot monitors (Column 6 lines 1 – 32; Column 8 lines 26 – 53 and Reshef Column 7 lines 10 – 28).

**36.** Claim 33 is rejected as applied above in rejecting claim 18. Furthermore, Cunningham discloses and describes wherein the step of polling the acceptance test results comprises polling the acceptance test results at a ballot monitor (Column 6 lines 1 – 32 and Column 7 line 56 – Column 8 line 53).

**37.** Claim 34 is rejected as applied above in rejecting claim 18. Furthermore, Cunningham discloses and describes wherein the step of polling the acceptance test results comprises applying multiple polling routines (Column 6 lines 1 – 32 and Column 7 line 56 – Column 8 line 53 and Reshef Column 7 lines 10 – 28).

**38.** Claim 35 is rejected as applied above in rejecting claim 18. Furthermore, Cunningham discloses and describes wherein the step of polling the acceptance test results comprises applying multiple polling routines to the responses from each of a multiplicity of ballot monitors (Column 6 lines 1 – 32 and Column 7 line 56 – Column 8 line 53 and Reshef Column 7 lines 10 – 28).

**39.** Claim 36 is rejected as applied above in rejecting claim 18. Furthermore, Cunningham discloses and describes a method for reconfiguring communication among network components to minimize the impact of intrusive events (Fig. 1, 2, 6 7; Summary and Column 5 line 8 – Column 11 line 50), wherein at least one of the steps of receiving a network service request, generating a response to a service request, applying one or more acceptance tests, polling the acceptance test results and forwarding the preferred response to a client comprises utilizing a separate processor to enhance independence of operation and minimize the impact of intrusive events (Column 7 line 56 – Column 8 line 53).

**40.** Claim 37 is rejected as applied above in rejecting claim 19. Furthermore, Cunningham discloses and describes wherein the step of revising the tolerance protocol and network forwarding scheme comprises forwarding on multiple independent paths (Column 6 lines 1 – 32 and Column 8 line 26 – Column 9 line 48).



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**41.** Claim 38 is rejected as applied above in rejecting claim 19. Furthermore, Cunningham discloses and describes wherein the step of revising the tolerance protocol and network forwarding scheme comprises forwarding to multiple independent acceptance monitors (Column 6 lines 1 – 32 and Column 8 lines 26 – 53).

**42.** Claim 39 is rejected as applied above in rejecting claim 19. Furthermore, Cunningham discloses and describes wherein the step of revising the tolerance protocol and network forwarding scheme comprises forwarding to multiple independent ballot monitors (Column 6 lines 1 – 32 and Column 8 lines 26 – 53 and Reshef Column 7 lines 10 – 28).

**43.** Claim 40 is rejected as applied above in rejecting claim 19. Furthermore, Cunningham discloses and describes wherein the step of revising the tolerance protocol and network forwarding scheme comprises forwarding to multiple independent proxy servers (Column 6 lines 1 – 32 and Column 8 lines 26 – 53).

**44.** Claim 41 is rejected as applied above in rejecting claim 19. Furthermore, Cunningham discloses and describes wherein the step of revising the tolerance protocol and network forwarding scheme further comprises comparing any detected anomalies with known anomalies to identify a predetermined intrusion tolerance protocol (Column 6 lines 1 – 32 and Column 8 lines 26 – 53).

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**45.** Claim 42 is rejected as applied above in rejecting claim 19. Furthermore, Cunningham discloses and describes wherein the step of revising the tolerance protocol and network forwarding scheme comprises determining the acceptance monitors that will be used to support the selected tolerance protocol (Column 8 line 54 – Column 9 line 48).

**46.** Claim 43 is rejected as applied above in rejecting claim 19. Furthermore, Cunningham discloses and describes wherein the step of revising the tolerance protocol and network forwarding scheme comprises determining the ballot monitors that will be used to support the selected tolerance protocol (Column 8 line 54 – Column 9 line 48).

**47.** Claim 44 is rejected as applied above in rejecting claim 19. Furthermore, Cunningham discloses and describes wherein the step of revising the tolerance protocol and network forwarding scheme comprises determining the proxy servers that will be used to implement the selected tolerance protocol (Column 8 line 54 – Column 9 line 48).

**48.** Claim 45 is rejected as applied above in rejecting claim 19. Furthermore, Cunningham discloses and wherein the step of revising the tolerance protocol and network forwarding scheme comprises prioritizing the network service requests (Column 8 line 54 – Column 9 line 48 and Column 10 line 32 – Column 11 line 46).

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49. Claim 13 is rejected as applied above in rejecting claim 12. Furthermore, Cunningham discloses and describes wherein said acceptance monitor receives responses from multiple independent protected servers and applies independent acceptance tests to each received responses (Cunningham Column 6 lines 1 – 32 and Column 8 lines 26 – 53).

50. Claim 14 is rejected as applied above in rejecting claim 13. Furthermore, Cunningham discloses and describes wherein said ballot monitor receives responses from multiple acceptance monitors and determines a preferred response from the multiple responses received (Cunningham Column 6 lines 1 – 32 and Column 8 lines 26 – 53).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pramila Parthasarathy whose telephone number is 571-272-3866. The examiner can normally be reached on 8:00a.m. To 5:00p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-232-3795.


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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR only. For more information about the PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Pramila Parthasarathy

April 07, 2005.

  
4/13/05